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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,554	05/10/2005	Takashi Kozeki	MITSP102US	7095
23623 7590 06/12/2008 AMIN, TUROCY & CALVIN, LLP 1900 EAST 9TH STREET, NATIONAL CITY CENTER 24TH FLOOR, CLEVELAND, OH 44114				
EXAMINER FRASER, STEWART A				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
06/12/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

doctet1@thepatentattorneys.com
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Office Action Summary

Application No.

10/534,554

Applicant(s)

KOZEKI ET AL.

Examiner

STEWART A. FRASER

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
- Paper No(s)/Mail Date 5/10/2005
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This is the initial office action for US Application No. 10/534554 titled, "Pellicle with Small Gas Generation Amount".
2. Claims 1-6 are currently pending and have been fully considered.

Drawings

3. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are:

- Claim 1 recites a pellicle structure, but does not indicate the structural components or characteristics of the pellicle structure.

- Claim 4 recites a pellicle-fed photo-mask structure, but does not indicate the structural components or characteristics of the pellicle-fed photo-mask structure.

6. Claims 2-3 and 5-6 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps.

See MPEP § 2172.01. The omitted steps are:

- Claims 2 and 3 are directed to methods of manufacturing a pellicle, but do not disclose method steps for forming a pellicle.
- Claim 5 is directed to a method of manufacturing a semiconductor device, but does not disclose the method steps for forming a semiconductor device.
- Claim 6 is directed to a method of using a pellicle, but does not disclose the method steps of using a pellicle.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
9. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over SHIOKAWA et al. (JP 2001-147518) in view of ZHANG et al. (US 2004/0137339) and KUNDU (US Patent 4,931,404).

The SHIOKAWA reference recites a pellicle that minimizes the amount of foreign matter formed on a photomask pattern. In view of claims 1-6, SHIOKAWA teaches [0005-0006] a photomask and pellicle assembly wherein a mask adhesion material containing various phenol derivatives is utilized. SHIOKAWA indicates [0008] that it is desirable to have only minimal quantities of phenol derivatives being produced during exposure to prevent foreign matter from accumulating on the photomask and pellicle assembly. SHIOKAWA further discloses [0012] heat treating the assembly and utilizing a nitrogen flow to attain the desired phenol derivative. The SHIOKAWA reference does not appear to explicitly teach the limitations of claims 1-6 directed to the use of polymer beads of 2,6-diphenyl-p-phenylene oxide as a surface adsorption material.

However, the ZHANG reference recites a photomask assembly and method of protecting the photomask assembly from contaminants generated during a lithography process. ZHANG teaches (Claim 28) a method for protecting a photomask from contaminants wherein a photomask and pellicle assembly is provided with a molecular sieve wherein the molecular sieve functions to prevent airborne molecular contaminants from ruining the photomask pattern. ZHANG further teaches (Claim 29) the molecular sieve being comprised of at least one material wherein the at least one material may be a surface adsorbent material and a gas separation

material. ZHANG also discloses [0059] that the material comprising the molecular sieve may be formed in the shape of beads. The ZHANG reference does not appear to explicitly disclose the limitations of claims 1-6 directed to the use of 2,6-diphenyl-p-phenylene oxide.

However, the KUNDU reference recites methods and materials for detecting analytes in a fluid sample. KUNDU discloses that the materials utilized include those materials which are capable of selectively adsorbing ketones and aldehydes from vapor samples and that such material should also readily and completely desorbs ketone analytes in the presence of preferred solvents. KUNDU teaches (Column 9, Lines 59-69) that 2,6-diphenyl-p-phenylene oxide polymers are capable of being utilized for detecting organic functional groups such as ketones and aldehydes. KUNDU also teaches (Claim 4) that the fluid sample detected may be a vapor.

At the time of the invention, one of ordinary skill in the art would have been motivated to modify the teachings of SHIOKAWA to further include the teachings of ZHANG and KUNDU in order to develop a method of detecting a volatile organic compound generated during a lithographic exposure process that involves the use of a 2,6-diphenyl-p-phenylene oxide polymer as a surface adsorbent material. In view of the SHIOKAWA reference, the ZHANG reference teaches that surface adsorption materials may be incorporated into the pellicle and photomask assembly in order to help detect and separate contaminants that can be produced during lithographic exposure processes. In view of the SHIOKAWA and ZHANG references, KUNDU teaches that a polymeric material, such as 2,6-diphenyl-p-phenylene oxide, can be utilized to detect analytes found in a fluid such as a vapor. Therefore, the claims specified in the instant application would have been obvious to one of ordinary skill in the art in light of the teachings of SHIOKAWA, ZHANG, and KUNDU.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEWART A. FRASER whose telephone number is (571)270-5126. The examiner can normally be reached on Monday to Thursday 6:30 am to 3:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SF

**/Mark F. Huff/
Supervisory Patent Examiner, Art Unit 1795**